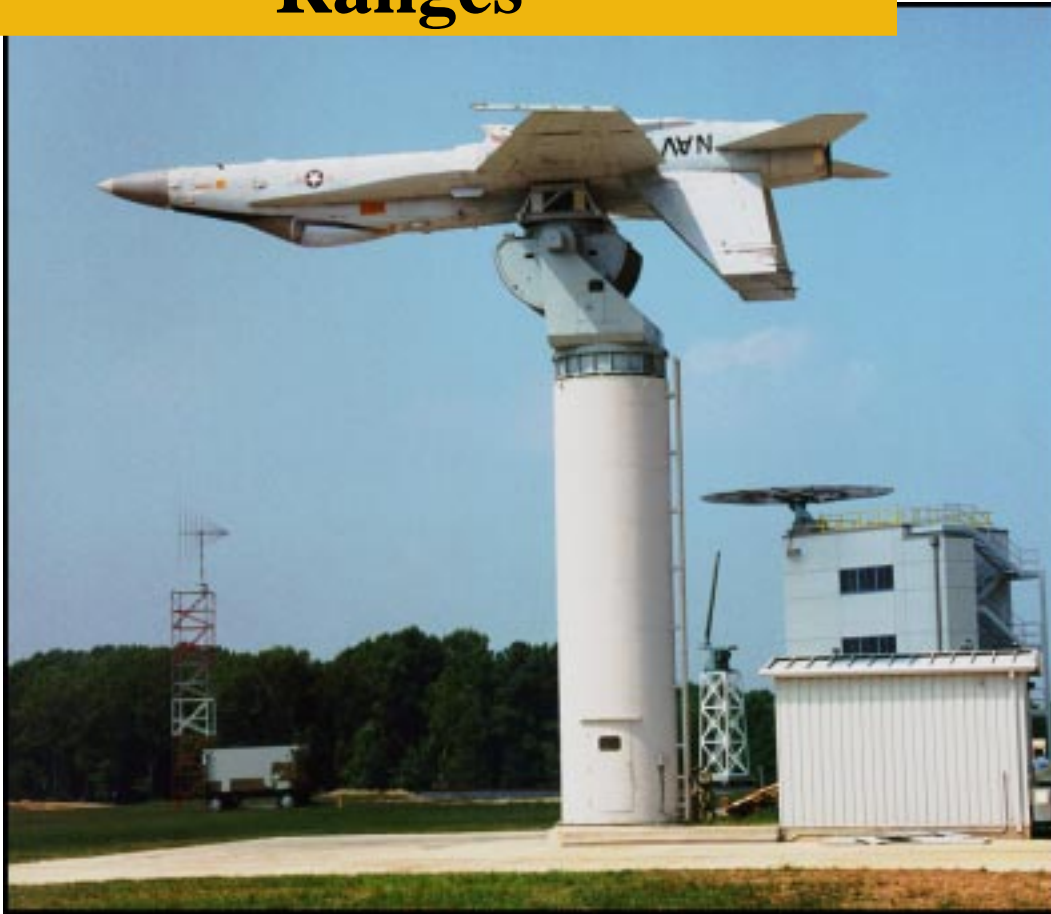


# FARM

## Outdoor Antenna Ranges



The RF Sensors Branch of the Naval Air Warfare Center Aircraft Division Facilities for Antenna and RCS Measurements (FARM) provides capabilities for conducting measurements of antenna systems characteristics (patterns, gain, VSWR, RCS, Antenna-to-antenna isolation, etc.) mounted on partial to full size airframes are conducted from three outdoor ranges and four anechoic chambers. The outdoor ranges may be configured for several illuminator test item distances up to 1500 feet away. measurements are made on antennas mounted on partial model airframes or full scale aircraft configurations to determine the effects of the airframe on their characteristics.

# The FARM Outdoor Range

The FARM's Outdoor Antenna Ranges consist of the following capabilities:

## **Full Scale Aircraft Range Building**

This facility provides a wide range of capabilities for evaluation of both antennas and complete avionics systems mounted in a full-size aircraft. Aircraft are mounted on a 40,000-pound maximum load azimuth-over-elevation positioner with azimuth and elevation limits dependent on the mounted airframe. Remotely controlled illuminator towers can be positioned up to 1,500 feet away or on pads fixed at 500, 1,000, and 1,500 feet. The measurement of antenna radiation patterns, gain, VSWR, antenna-to-antenna isolation is available over a frequency range of 100 MHz to 18 GHz. Desired and jamming signal sources can be positioned at various azimuth and elevation angles away from the mounted aircraft for the technical evaluation of avionics systems installed in the host airframe. Measurement capabilities include an integrated suite of instrumentation and software for automated antenna measurements.

## **Full Scale Aircraft Antenna Range Tower**

This facility provides a wide range of capabilities for the evaluation of both antennas and complete avionics systems mounted in a full-size aircraft. Host aircraft are mounted on a 45,000 lb maximum

load azimuth-over-elevation-over-azimuth positioner with azimuth and elevation limits dependent on the mounted airframe. Remotely controlled illuminator towers can be positioned up to 1,500 feet away or on pads fixed at 500, 1,000, and 1,500 feet. The measurement of antenna radiation patterns, gain, VSWR, and antenna-to-antenna isolation is available over a frequency range of 20 MHz to 26.5 GHz. Desired and jamming signal sources can be positioned at various azimuth and elevation angles away from the mounted aircraft for the technical evaluation of the avionics systems installed in the host airframe. Instrumentation capabilities include an integrated 32-channel multiplexing high-speed continuous wave/pulse data acquisition system and software for automated antenna measurements.

## **Antenna Range**

This multiconfigured antenna range can mount antennas on a 10,000 lb maximum load azimuth-over-elevation positioner located on the rooftop and a 750 pound maximum load model tower mounted on an adjacent railroad track with a range of 0 to 100 feet from the building. Remotely controlled illuminator towers can be positioned up to 1,500 feet away or on pads fixed at 500, 1,000, and 1,500 feet from the building. Primary uses are large, partial full scale mock-up measurements and communications

antenna evaluations. A 32-foot ground plane can be mounted on the rooftop positioner for the evaluation of communication antenna systems. Instrumentation capabilities include analog/digital antenna pattern recording, and a frequency range of 20 MHz to 18 GHz.

## **Equipment Resources:**

**Full Scale Aircraft:** UH-1, F/A-18, F-14A, A-6, EA-6B.

**Full Scale Stores:** WALLEYE Data Link Pod, WALLEYE Bomb, Fuel Tanks: A-6, 300 gal., A-7, 300 gal., F/A-18330 gal. cylindrical, and F/A-18315 gal. elliptical.

**Full Scale partial Mock-Ups:** E-2C Cockpit, P-3 Ground Plane, S-3A Cockpit, VH-3D Tail Boom, F-4 Nose Ground Plane, OV-10 Tail Boom, F-14 Turtle Back, HU-25 Mid Section, and KC-130 Center Fuselage.



*For more information contact the FARM Antenna Facilities, Naval Air Warfare Center Aircraft Division, Patuxent River, MD 20670, at 301-342-9152.*